

21/

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2000-112976

(43)Date of publication of application : 21.04.2000

-----  
(51)Int.Cl. G06F 17/30  
G06F 3/00

-----  
(21)Application number : 10-282569 (71)Applicant : HITACHI LTD

(22)Date of filing : 05.10.1998 (72)Inventor : ISHIBASHI ATSUSHI  
YAMAGUCHI TADAHIRO  
HOSHINO TAKASHI  
KOJIMA SATOKO

-----  
(54) INFORMATION DISPLAY METHOD, INFORMATION PROCESSING METHOD  
FOR MULTIMEDIA INFORMATION UNIT AND INFORMATION PROCESSOR

(57)Abstract:

PROBLEM TO BE SOLVED: To provide the display method/processing method/processor/processing system of multimedia information with good operability, which can easily select information which a user desires from various and much supplied contents and which can display information in an optimum method for the user.

SOLUTION: Means 101 and 114 receiving information of plural media, a means 113 generating a profile 105 based on the viewing history of a user, means 108 and 300 displaying information in accordance with the contents of the profile 105 and a means

107 recording information if need are installed. A cube storing information of contents in a state where they are arranged on the axis of the cube by individual media, individual genres and individual time (individual newness of information) as a picture for information selection is used. The user can select the contents from multiple directions without switching the picture by selecting information on the respective axes of the cube and information on the contents on the surface of the cube.

\* NOTICES \*

JPO and INPIT are not responsible for any damages caused by the use of this translation.

- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.\*\*\*\* shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

---

## CLAIMS

---

[Claim(s)]

[Claim 1]In an information display method of multimedia information apparatus which can display information on two or more media, a three-dimension top which sets each axis as a kind of media, a genre, and time (newness of information) -- said information -- a table -- the bottom a screen for information selection, [ display and ] An

information display method of multimedia information apparatus displaying information which a user chose from information on said two or more media with said screen.

[Claim 2]An information display method of the multimedia information apparatus according to claim 1, wherein a kind of said media, a genre, and time (newness of information) are displayed on order with a high recommendation degree from a side near a user's viewpoint.

[Claim 3]An information display method of the multimedia information apparatus according to claim 1 or 2, wherein a screen for said information selection expresses a kind of media, a genre, and time (newness of information) to each axis of a cube or a rectangular parallelepiped.

[Claim 4]An information display method of the multimedia information apparatus according to claim 1, 2, or 3 if a user chooses arbitrary kinds from which axis of a kind of media, a genre, and time (newness of information), wherein all the information included in the kind will be displayed.

[Claim 5]An information display method of the multimedia information apparatus according to claim 3 or 4 displaying some contents of said information on the surface of said cube or a rectangular parallelepiped.

[Claim 6]An information display method of the multimedia information apparatus according to claim 5, wherein selection operation of information is possible by choosing one of said the information displayed on the surface of said cube or a rectangular parallelepiped using a screen for said information selection.

[Claim 7]When a user chooses arbitrary kinds from which axis of a kind of media, a genre, and time (newness of information), Or when one of said the information displayed on the surface of said cube or a rectangular parallelepiped is chosen, An information display method of the multimedia information apparatus according to claim 5 or 6 by which an angle of presenting of said information displayed on said cube or a rectangular parallelepiped is characterized by changing to an angle parallel to a display screen so that it may be legible to a user.

[Claim 8]In an information processing method of multimedia information apparatus which can display information on two or more media, An information processing method of multimedia information apparatus giving a score to information to which it viewed and listened based on a user's viewing-and-listening record, and arranging and displaying said information according to this score on a three dimension centering on each of a kind of media, a genre, and time (newness of information).

[Claim 9]An information processor of multimedia information apparatus which can display information characterized by comprising the following on two or more media.

A means to receive information on two or more media.

A means to create a profile based on a user's viewing history.

A means to arrange and display said information according to the contents of said profile on a three dimension centering on each of a kind of media, a genre, and time (newness of information).

A means to record said information if needed.

2.\*\*\*\* shows the word which can not be translated.

3.In the drawings, any words are not translated.

---

## DETAILED DESCRIPTION

---

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention An information display method of multimedia information apparatus, an information processing method, And an information processor is started and it is related with the information display method of the good multimedia information apparatus which enabled him for a user to discover easily the information for which he wishes, and to choose it from various multimedia information especially and which is used and won, an information processing method, and an information processor.

[0002]

[Description of the Prior Art]In recent years, in the technical field of TV broadcast, in addition to the spread of CS digital broadcasts, digitization of BS broadcasting and terrestrial broadcasting is going to be started, and abundant and various contents are going to be sent into the home through broadcasting media.

[0003]On the other hand, it is possible for a network to progress and to retrieve the information in the world in the technical field of a personal computer (PC), at homes including WWW by the Internet.

[0004]And conventionally, although TV and PC have been used for a separate user and the separate purpose, they are expected that TV or PC will function as a window of domestic information from now on, and are expected to shift to the figure with which TV and PC were united in this case.

[0005]In TV broadcast as conventional technology treating a lot of such various contents [ being above ] and information, It has an image preserving means of several hours, the information changed with time, such as news and a weather report, is updated automatically to the newest thing, and the service which enables it to see these always is proposed.

[0006]The art etc. which use a character as an interface for selection of a lot of contents and information in order to show a user positively the display of a race card, the display of the menu as a table of contents, and the contents that carried out autosave are proposed.

[0007]

[Problem(s) to be Solved by the Invention]Becoming very difficult [ it / for TV and PC to be united, and for a lot of various contents and information to be sent into each home from now on, as mentioned above, but to use a front / information / a lot of / such various contents and /, and for a user to select himself the information which he searches for ] is expected. the thing in particular for which the elderly-people layer called the high-tech weak and a woman layer select the information which he searches for themselves not being easy, and setting under such environment -- anyone -- although -- development of the human interface which can be mastered easily is called for as an indispensable technical problem.

[0008]The conventional technology about the interface mentioned above, If it is the display of a race card, the display of the menu as a table of contents, and the display of the contents by a character and contents and information become abundant, If the menu for making them choose, etc. are not made into a layered structure, no contents can be displayed, and the user has the problem that it becomes very difficult to

choose a desired thing out of these.

[0009]The purpose of this invention solves said technical problem, and it solves the problem of the conventional technology mentioned above, A user is enabled to choose desired information from a lot of [ that it is various and ] contents provided easily, Or instead of a user, choose the information according to the user's taste automatically, and record-keeping is performed, Or it is in providing the method of presentation, the disposal method, processing unit, and processing system of multimedia information with the sufficient user-friendliness which can display the contents which were selected automatically and carried out record-keeping the optimal for a user.

[0010]

[Means for Solving the Problem]In [ according to this invention ] an information display method of multimedia information apparatus by which said purpose can display information on two or more media, a three-dimension top which sets each axis as a kind of media, a genre, and time (newness of information) -- said information -- a table -- it is attained by the bottom's displaying a screen for information selection and displaying information which a user chose from information on said two or more media with said screen.

[0011]When said purpose displays a kind of said media, a genre, and time (newness of information) on order with a high recommendation degree from a side near a user's viewpoint, moreover -- making a kind of media, a genre, and time (newness of information) a screen for said information selection correspond to each axis of a cube or a rectangular parallelepiped -- a table -- it is attained by the bottom considering it as a thing.

[0012]If said purpose chooses [ a user ] arbitrary kinds from which axis of a kind of media, a genre, and time (newness of information), when displaying all the information included in the kind, what some contents of said information are displayed on the surface of said cube or a rectangular parallelepiped for -- it is attained by having enabled selection of information by choosing one of said the information displayed on the surface of said cube or a rectangular parallelepiped using a screen for said information selection.

[0013]When said purpose chooses kinds with a user arbitrary from which axis of a kind of media, a genre, and time (newness of information), Or when one of said the information displayed on the surface of said cube or a rectangular parallelepiped is chosen, an angle of presenting of said information displayed on said cube or a rectangular parallelepiped is attained by being changed to an angle parallel to a display screen so that it may be legible to a user.

[0014]In an information processing method of multimedia information apparatus by which said purpose can display information on two or more media, A score is given to information to which it viewed and listened based on a user's viewing-and-listening record, and it is attained by arranging and displaying said information according to this score on a three dimension centering on each of a kind of media, a genre, and time (newness of information).

[0015]In an information processor of multimedia information apparatus by which said purpose can display information on two or more media, A means to receive information on two or more media, and a means to create a profile based on a user's viewing history, It is attained by having a means to arrange and display said information according to the contents of said profile on a three dimension centering on each of a kind of media, a genre, and time (newness of information), and a means to record said information if needed.

[0016]

[Embodiment of the Invention]Hereafter, a drawing explains the information display method of the multimedia information apparatus by this invention, an information processing method, and the embodiment of an information processor in detail.

[0017]The block diagram showing the example of composition of multimedia information apparatus according [ drawing 1 ] to one embodiment of this invention, The block diagram showing other examples of composition of multimedia information apparatus according [ drawing 2 ] to one embodiment of this invention, the block diagram showing the example of composition of further others of multimedia information apparatus according [ drawing 3 ] to one embodiment of this invention, and drawing 4 are the figures showing the example of composition of a remote control unit. In drawing 1 – drawing 4, 100 and 700 in a processing unit, and 101 and 101 A signal separation device, 102 information decoders and 103 information buffers, and 104 and 701 A comparing element, 105 and 601 a user profile and 106 an A/V decoder and 107 An image recording device, 108 a display picture switch part and 109 a guide screen preparing part, and 110 and 704 A filing device, 111 a clock calendar and 112 an indicative-data selection part and 113 A command reception part, A WWW browser, and 115 and 702 114 and 703 A latest information buffer, 200 an antenna, and 300 and 800 a display and 400 A remote control, 401 a body part and 402 an electric power switch and 403 A menu switch, 404 an user choice switch and 405 a revolving dial and 406 A cursor switch, 407 a detailed switch and 409 a recorded-information-reproduction control switch group and 410 An infrared ray emission section, 411 the circuit board and 412 a tact switch and 413 A rotation

detector, 414 -- IC for control, and 415 -- as for a celebrity profile and 603, a communication line and 600 are [ a final controlling element and 900 ] portable telephones a provider recommendation information file and 705 a service provider and 602 a cell and 500.

[0018]The multimedia information apparatus 100 by one embodiment of this invention shown in drawing 1, The media as information are the processing units only for the media by broadcast of TV broadcast etc., the broadcasting signal from the antenna 200 is received and the image and sound which the user chose by control by the user from the remote control unit 400 are displayed on the display 300. And the processing unit 100, The signal separation device 101, the information decoders 102, the information buffers 103, the comparing element 104, the user profile 105, the A/V decoder 106, the image recording device 107, the display picture switch part 108, the guide screen preparing part 109, the filing device 110, the clock calendar 111, It has the indicative-data selection part 112 and the command reception part 113, and is constituted.

[0019]In the above-mentioned, the signal separation device 101 has a function which carries out the reception recovery of the broadcasting signal, separates the image transmitted, the information containing a sound, and the pertinent information which accompanies this information, and transmits each of these information to the A/V decoder 106 and the information decoders 102. The pertinent information given to the information decoders 102, In the case of TV broadcast, it is program information, for example, and it is text data, such as a title, time (time of onset - end time), a genre subgenre, a performer, a player, a supervisor and etc, an introductory essay, media, a station name, and the decoded data is stored in the information buffers 103.

[0020]In TV broadcast, although many programs are broadcast in parallel, the signal separation device 101 and the information decoders 102 can separate and decode the pertinent information on all the programs, and those information is stored in the information buffers 103.

[0021]When the processing unit 100 is used at home, each of a family's constituent may be equipped with two or more user profiles 105, or purpose-oriented may be equipped with them to the individual. [ two or more ] and -- this user profile 105 is what is created by the history in which the individual viewed and listened to broadcasting media in the past -- the score of a genre subgenre, and keywords (a title, a performer, an introductory essay, etc.) -- each time -- the score, the score for every time zone of the above-mentioned score data, etc. are recorded. The above-mentioned score is calculated based on the viewing-and-listening frequency



for every genre when it views and listens to broadcasting media, viewing time, etc.

[0022]The comparing element 104 compares the data stored in the information buffers 103 with the data stored in the user profile 105, and detects the degree of agreement. That is, what has a high score by the data in the user profile 105 in the program information of the program broadcast now is detected, and the data is passed to the filing device 110. The filing device 110 records the data on individual correspondence, and it controls the image recording device 107 based on the data.

[0023]The A/V decoder 106 which, on the other hand, received the information containing the image from the signal separation device 101 and a sound decoded the information containing the image of the last program currently broadcast, and a sound, and has transmitted it to the image recording device 107 and the display picture switch part 108. The image recording device 107 records the image of the program specified by the filing device 110 based on the data from the filing device 110, and audio information.

[0024]When it is going to view and listen to the information which operates the processing unit 100 and is recorded on TV broadcast and the image recording device 107, a user operates the remote control unit 400 and transmits an operating command to the sequential operation device 100. The command reception part 113 of the processing unit 100 receives the command from the remote control unit 400, and passes the command to the indicative-data selection part 112. When personal identification data is contained in a command according to the received command, the indicative-data selection part 112 chooses that to which the filing device 110 corresponds, and transmits a command to the guide screen preparing part 109 with the data.

[0025]the inside of the data in the command which the guide screen preparing part 109 received, and a filing device, and the image recording device 107 -- preservation -- a guide screen is created based on information, including its \*\*\*\*\* image etc. The display picture switch part 108 chooses the image from the A/V decoder 106, the image recording device 107, and the guide screen 109, and displays it on the display 300. The details about selection of operation by the above-mentioned user, a guide screen, and an image are mentioned later.

[0026]The multimedia information apparatus 100 by other embodiments of this invention shown in drawing 2 is a processing unit for the media according [ the media as information ] to broadcast of TV broadcast etc., and the media obtained from the Internet etc. via the communication lines 500, such as a CATV circuit and a telephone wire. To the processing unit 100 shown in drawing 1, the processing unit 100 shown in

this drawing 2 adds WWW browser 114 which incorporates the information from the communication line 500, signal separation device 101' which separates video information and an audio signal, and a latest information buffer, and is constituted.

[0027]In the above-mentioned, the data about the information on \*\*\*\*\* rare \*\*\*\* from WWW browser 114, They are a title, a genre subgenre on a directory, an introductory essay, a keyword, etc., For example, it is used like the case of the data which about two latest months of a homepage that the user had accessed in the past were stored in the latest information buffer 115, and was stored in the information buffers 103 explained by drawing 1. The crisis of the \*\*\*\*\* rare \*\*\*\*\* from WWW browser 114 is carried out via signal separation device 101', and it is given to the A/V decoder 106. The signal from this signal separation device 101' as well as the case of the signal from the signal separation device 101 explained by drawing 1 is used.

[0028]Furthermore it is based on one embodiment of this invention shown in drawing 3, others multimedia information apparatus, Creation of a user profile and preservation are made to perform to service pro BAITA, and it is made to make the processing to the information which can be acquired via a communication line perform in a personal digital assistant, a personal computer (PC), etc. And a graphic display processing system is constituted by the processing unit 100, the service provider 600, and the processing unit 700 by personal digital assistant, PC, etc.

[0029]The processing unit 100 comprises the processing unit 100 explained by drawing 1 except for the user profile 105, and is connected by the service provider 600 and the communication line. The service provider 600 The command information from the processing unit 100, Based on the data in the filing device 100, etc., the user profile 601 to a user's individual is created and held, and when a user views and listens to video information etc. using the processing unit 100, it transmits to the comparing element 103 of the processing unit 100. The information in this user profile 601 is used by the processing unit 100 like the case of the contents of the user profile 105 explained by drawing 1. Simultaneously, the service provider 600 creates the celebrity profile 602 and the provider recommendation information 603, gives these as information on the user profile 601, and provides as reference in case a user views and listens to video information etc. using the processing unit 100.

[0030]The processing unit 700 is provided with the comparing element 701, the latest information buffer 702, WWW browser 703 connected to the portable telephone etc., the filing device 704, and the final controlling element 705, is constituted, and performs processing to the media information through the communication line explained by drawing 2. The user can view and listen to the information from the

Internet etc. using the display 800 connected to the processing unit 700. In this case, although a user operates WWW browser 703 using the final controlling element 705 and desired information is taken out, The data in the latest information buffer 702 which stores the past information in this extraction, and the data in the service provider's 600 user profile 601 are referred to via the comparing element 701.

[0031]When constituted by the personal digital assistant, it connects the portable telephone 900, and the processing unit 700 incorporates the information from the Internet etc., and performs the data communications between the service providers 600, and makes the user profile 601 create in the service provider 600. When the processing unit 700 is constituted by PC etc., a telephone line may be connected instead of connecting the portable telephone 900.

[0032]Next, the composition of the remote control unit 400 for operating the processing unit 100 of the embodiment of this invention explained by the above-mentioned is explained with reference to drawing 4. Although it is natural, if it can be operated with the remote control unit 400, it may have the operation machine style which can perform equivalent operation also in the processing unit 100.

[0033]As it is indicated in the plan of drawing 4 (a) as the body part 401, the remote control unit 400, As it is indicated in the sectional view of drawing 4 (b) as the electric power switch 402 formed in the upper surface, the menu switch 403, the user choice switch 404, the revolving dial 405, and the cursor switch 406 and the detailed switch 407, It has the circuit board 411 formed in an inside, connection IC414 which are provided on this board 411, the infrared ray emission section 410, the rotation detector 413 to the revolving dial 405, and the tact switch 412 that constitutes each switch, and is constituted.

[0034]A function, directions for use, etc. which each switch in the remote control unit 400 mentioned above and the revolving dial 405 have are mentioned later. Although the remote control unit of composition of having been shown in above-mentioned drawing 4 (a) and drawing 4 (b) can perform operation to the processing unit 100 shown in drawing 1 mentioned above - drawing 3, When there is a demand of reproducing an image directly from the image recording device 107, as shown in the plan of drawing 4 (c), the switch group 409 for controlling the image recording device 107 directly to the remote control unit 400 can be formed.

[0035]Next, it is various and the example of the guide screen for making the information which he expects of a user choose from much information is explained.

[0036]The figure with which drawing 5 explains the example of a guide (interface) screen for the information selection by this invention, and drawing 6 are the enlarged

drawings explaining the details of a cube.

[0037]Generally, evaluation of an interface is performed by cognition nature (conspicuousness, intelligibility) and operativity (the ease of using). This invention has set up the "cognitive model" which used three dimensional space as the model, in order to aim at improvement in the cognition nature of an interface screen. Thereby, it is easy for the interface screen by the cognitive model of this invention to be able to store many information on 1 screen compared with the conventional two-dimensional display screen, and to recognize it by displaying, where they are arranged logically logically.

[0038]Namely, the fundamental view over the interface screen by the cognitive model of this invention, As shown in drawing 5, in a screen the information on the contents of two or more media and two or more genres, A user makes desired contents selectable out of the cube which connected many cubes stuffed from an old thing to a new thing, displayed pivotable, and was greatly displayed most on this side. The cube corresponding to the user's individual in each cube (PaPa1-PaPa3), They are a cube (hydrodesulfurization) including the information on the contents considered as recommendation by the information service side, a cube (best 10) which includes the information on popular contents in a user, a cube (talent) including the information on the contents about the talent to whom the user probably gets interested, etc.

[0039]As shown in drawing 6, each cube each of three axes of a cube or a rectangular parallelepiped A media axis, It is constituted so that the information to which it is going to view and listen from the information for the information selection which shows the kind of media arranged on the genre axis and the three-dimensional axis made into a time-axis, a genre, and time (newness of information) may be made to choose. And make into this side the media to which it often views and listens, and they are put in order by the media axis, and media kinds, such as TV, data broadcasting, H.P (homepage), and electronic publishing, them on a genre axis. The kind of genres, such as news, the weather, a movie, and music, makes this side the media to which it often views and listens, and is put in order. what has the bottom where a time-axis is assigned to the axis of \*\*\*\*\*, its top is new, and it is old -- it is assigned by carrying out.

[0040]The user who is going to use the above cubes and is going to choose contents to view and listen chooses one media on a media axis with cursor, for example. Then, all the genres in the media and the information on the contents arranged on the full time axis are displayed. The user can view and listen to the contents shown using that information by choosing one of the information of this. If a user chooses the genre of

one on a genre axis, the information on the contents of the genre arranged at all the media axes and all the time-axes is displayed, and the user can choose, view and listen to arbitrary contents similarly. It is also the same as when selection is performed from a time-axis. The information on the contents arranged on the surface of the cube can also be chosen directly, and, thereby, it can view and listen to the contents which he wishes by one choice. When the information on the contents arranged on the surface of the cube is chosen directly, as shown in drawing 6, it is changed so that the portion which shows the contents as which the cube surface was chosen may turn to a transverse plane, and will be in a legible state.

[0041]As mentioned above, in a cube contents A media exception, according to genre, being stored in the state where it arranged according to time (according to newness of information) -- a thing [ of the surface of a cube ], and media exception, and a genre exception -- if -- what has as high the degree of recommendation as this side. Or since the large thing of a user's interest will be arranged, without changing a screen, the user can choose contents from the direction of many, and can choose easily the high contents which are the surface of a cube, or the degree of recommendation of a near side.

[0042]The flow chart explaining the operation which chooses the information to which it views and listens using drawing 7 - multimedia information apparatus according [ drawing 13 ] to the embodiment of this invention, and operation by it, Drawing 14 - drawing 17 are the figures showing the example of a screen displayed one by one according to operation, and explain hereafter the flow shown in drawing 7 - drawing 13 with reference to the example of a screen shown in drawing 14 - drawing 17. To the processing unit shown in drawing 2 although, the same of the flow explained below may be said of the case of drawing 1 and drawing 3.

[0043](1) In the flow shown in drawing 7, if the power supply of the processing unit 100 is one, as shown in drawing 14 (a), the usual TV program memorized at the time of the last end of viewing and listening will be displayed first (Step 701).

[0044](2) If waiting and operation are not performed [ that user choice operation is performed as operation from a remote control, and ] in this state, display the usual TV program as it is (Steps 702 and 703).

[0045](3) If a user does the depression of the user choice key 404 of the remote control 400 noting that he performs user choice operation, as shown in drawing 14 (b), the selection button which has two or more user names in the lower part of a display screen will be displayed (Step 704).

[0046](4) The user who considered the power supply of the processing unit 100 as

one chooses, when he moves cursor to the user name which operates the cursor switch 406 of the remote control unit 400 right and left, and is displayed [ who it is and ], and he does a determination input by depressing the cursor switch 406. Operation of this remote control unit is shown within the flow by "W" surrounded with a circle, and explains this operation as the operation W by the following explanation (Step 705).

[0047](5) If the selection input of the user name is carried out, the selected user mode will be set as a processing unit (Step 706).

[0048](6) The program under broadcasting according to the user's profile with the selected user mode set up at Step 706 is displayed as shown in drawing 14 (c) (Step 707).

[0049](7) When a user performs other programs or selection of information in the state where the screen as shown in drawing 14 (c) is displayed, a user pushes the menu switch 403 of the remote control unit 400. Thereby, as shown in drawing 14 (d), a menu is displayed on the lower part of a display screen (Steps 708 and 709).

[0050](8) The menu displayed at Step 709, For example, it is "recommendation", "it choosing out of other media", "search from a keyword", an "e-mail corner", "a weather report, the mini information on NEWS", etc., and a user chooses these one by performing operation W with a cursor switch. Thereby, the screen corresponding to those menus is displayed. Here, "recommendation" should be chosen from the menu (Step 710).

[0051](9) It moves to the flow shown in drawing 8, and the cube group into which the information on the contents of the recommendation [ like ] shown in drawing 14 (e) arranged, and was stuffed first is displayed. The user by whom the cube which that of this display is the same as that of what was explained by drawing 5, and is made it is the largest and active was set up is supported (Step 801).

[0052](10) Here, if a user pushes the menu switch 403 again, as shown in drawing 16 (b), a menu will be displayed on the lower part of a display screen, and it will become possible to select this menu (Steps 802 and 803).

[0053](11) In the state where the display shown in drawing 14 (e) of Step 801 is performed. If a user turns the revolving dial 405, as shown in drawing 16 (a), the cube which a cube group rotates and will be in an active state is changed, and it will be in the state of Step 801 again (Steps 804-806).

[0054](12) In the state where the display shown in drawing 14 (e) of Step 801 is performed, the user can use the cursor switch 406, can choose contents using an active cube, and can display the details of contents (Steps 807-809).

[0055]As a user is shown in drawing 15 (a), when one media, for example, H.P, are chosen from the media axis of a cube now, as he shows drawing 15 (b), the offer contents by two or more genres and time which are provided by media H.P are displayed as a table. As a user is shown in drawing 15 (c), when one genre, for example, the weather, is chosen from the genre axis of a cube, as he shows drawing 15 (d), the offer contents by two or more media and time which provide the genre weather are displayed as a table. If a user chooses from the time-axis of a cube as shown in drawing 15 (e), as shown in drawing 15 (f), the offer contents by two or more media and genres which will be saved or planned from now on in the past provided in the time zone will be displayed as a table.

[0056]Selection from the axis of a cube mentioned above can be performed by locating cursor in the periphery of a cube. When an axis is chosen, as shown in drawing 16 (g), a cube rotates somewhat positively and the axial surface becomes legible. The user can choose directly the contents currently displayed on the surface of the cube, as shown in drawing 16 (e). In this case, a user positions in the contents of the surface of the cube which is having cursor displayed, and should just perform operation W, and it shifts to processing of Step 820 which this mentions later. At this time, as the portion which shows the contents on the surface of a cube rises and drawing 6 explained, and as shown in drawing 16 (f), it is changed so that it may turn to a transverse plane, and will be in a legible state.

[0057](13) In the state where the screen of drawing 15 (b), drawing 15 (d), and drawing 15 (f) is displayed, a cursor switch is operated, and if a user chooses the button of "returning" currently displayed on the screen, he will return to the state of Step 801 (Steps 810-812).

[0058](14) A user in the state where the screen of drawing 15 (b), drawing 15 (d), and drawing 15 (f) is displayed. If a cursor switch is operated, one of the contents currently displayed as a table is chosen and the depression of the decision key is carried out, it will shift to processing of Step 820 mentioned later (Steps 810, 813-815).

[0059](15) If a user operates a cursor switch, chooses one of the contents currently displayed as a table and pushes the detailed switch 407 of the remote control, as shown in drawing 16 (c), Description of the detailed information about selected contents, for example, a title, and easy contents, etc. are displayed (Steps 816 and 817).

[0060](16) In the state where detailed information is displayed at Step 817, if a detailed switch is pushed once again, it will return to the display screen in Step 809

(Steps 818 and 819).

[0061](17) Selected contents will be displayed if the decision key is pressed in the state of a display at Step 817. When selected contents are under television televising and a recorded image, the contents can be appreciated through Step 822 mentioned later (Steps 820–823).

[0062](18) When selected contents are what is a television recording schedule, It shifts to Step 824 mentioned later, and when selected contents are a homepage, data broadcasting, and electronic publishing, those contents can be appreciated through Steps 837 and 838 (Step 826).

[0063](19) While performing appreciation of the recorded image during television televising, operation of Step 827 mentioned later is possible, and the screen into which the questionnaire of the program to which the program viewed and listened as it was shown in drawing 16 (d), after an end or playback was completed is made to input is expressed as Step 823. – with this questionnaire interesting, for example — \*\*\*\* is made to evaluate pleasantly in five steps, and if it inputs by choosing one of the evaluations to this, it will return to the display screen of the contents menu of Step 809 (Steps 827–831).

[0064](20) While viewing and listening [ Step 826 ] to the contents of a homepage, data broadcasting, and electronic publishing, after operation of Step 832 mentioned later is possible and viewing and listening is completed, If the screen into which the questionnaire of the program to which it viewed and listened is made to input like the above-mentioned case is displayed and evaluation is inputted to this questionnaire, it will return to the display screen of the contents menu of Step 809 (Steps 832–835).

[0065](21) When evaluation is inputted by the questionnaire of Steps 830 and 834, the evaluation is reflected in a profile and saved as profile data (Step 836).

[0066](22) When it moves to the flow shown in drawing 9, and the contents displayed at Step 821 are ending with recording during television televising, and a recording schedule and the decision key is pressed again, as it is shown in drawing 17 (a), The detailed information of the contents is displayed and the program navigational panel corresponding to [ 1 to 1 ] the cursor switch 406 is displayed. The user can return to a recommendation screen and a TV picture by the end which can perform reproduction of the program, preservation, elimination, etc., and returns by operating the cursor switch 406 according to the displayed program navigational panel. This processing is processing of Steps 822 and 824 of drawing 8 (Steps 901 and 902).

[0067](23) It moves to the flow shown in drawing 10, and when the selection contents in the above-mentioned step 821 are electronic publishing, as shown in drawing 17 (b),



the detailed information of the contents is displayed, and the program navigational panel corresponding to [ 1 to 1 ] the cursor switch 406 is displayed. The user can return to a recommendation screen and a TV picture by the end which can perform reading the publication, eliminating, saving, etc., and returns by operating the cursor switch 406 according to the displayed program navigational panel. If the decision key is again pressed by the user in the middle of appreciation of the contents in the above-mentioned step 826, the same operation as the above-mentioned can be performed to the electronic publishing thing which is another contents. This processing is processing of Steps 838 and 832 of drawing 8 (Steps 1001 and 1002).

[0068](24) When it moves to the flow shown in drawing 11, and the selection contents in the above-mentioned step 821 are a homepage and data broadcasting, as it is shown in drawing 17 (c), the detailed information of the contents is displayed, and. The program navigational panel corresponding to [ 1 to 1 ] the cursor switch 406 is displayed. The user can return to a recommendation screen and a TV picture by the end which can perform watching the homepage and data broadcasting, eliminating, saving, etc., and returns by operating the cursor switch 406 according to the displayed program navigational panel. If the decision key is again pressed by the user in the middle of appreciation of the contents in the above-mentioned step 826, the same operation as the above-mentioned can be performed to the homepage and data broadcasting which are another contents. This processing is processing of Steps 837 and 832 of drawing 8 (Steps 1101 and 1102).

[0069](25) If it moves to the flow shown in drawing 12 and a user presses the decision key again in the middle of appreciation of TV under televising at the above-mentioned step 823, and recorded contents, as shown in drawing 17 (d), the program navigational panel corresponding to [ 1 to 1 ] the cursor switch 406 will be displayed into a display screen. The user can return to a recommendation screen and a TV picture by the end which can perform halt of the program, rapid traverse, rewinding, etc., and returns by operating the cursor switch 406 according to the displayed program navigational panel. This processing is processing of Step 827 of drawing 8 (Steps 1201 and 1202).

[0070](26) If the decision key is pressed while reading the electronic publishing thing explained by the flow shown in drawing 8, and the homepage, the navigational panel of the browser which moves to the flow shown in drawing 13, and is not illustrated will be displayed. If operation which returned to the recommendation screen and followed the operator guidance in other panels with this navigational panel when directing the end is performed, exclusive use as a browser can be operated (Steps 1301 and 1302).

[0071]The embodiment of this invention mentioned above the guide (interface) screen

for information selection, The user makes desired contents selectable out of the cube which connected many cubes which stuffed the information on the contents of two or more media and two or more genres from an old thing to a new thing, displayed pivotable, and was greatly displayed by most this side in the screen. Each cube each of three axes of a cube or a rectangular parallelepiped And a media axis, It is constituted so that the information to which it is going to view and listen from the information for the information selection which shows the kind of media arranged on the genre axis and the three-dimensional axis made into a time-axis, a genre, and time (newness of information) may be made to choose.

[0072] Since the embodiment of this invention is using the above cubes, the user who is going to choose contents to view and listen can choose contents easily by choosing the arbitrary information on each axis. As mentioned above, in a cube contents And according to media, being stored in the state where it arranged a genre exception and according to time (according to newness of information) -- a thing [ of the surface of a cube ], and media exception, and a genre exception -- if -- what has as high the degree of recommendation as this side. Or since the large thing of a user's interest will be arranged, without changing a screen, the user can choose contents from the direction of many, and can choose easily the high contents which are the surface of a cube, or the degree of recommendation of a near side.

[0073] According to the embodiment of this invention mentioned above, two or more kinds of profiles which gave the score to said information based on viewing-and-listening record of a user's past to the information on two or more media are created, Since he is trying to display information based on at least one of the created profiles, a user can make the contents liked most choose immediately.

[0074]

[Effect of the Invention] It is supposed that a user is able to choose desired information from a lot of [ that it is various and ] contents provided easily according to this invention as explained above, Instead of a user, choose the information according to the user's taste automatically, and record-keeping is performed, Or the information display method of multimedia information apparatus with the sufficient user-friendliness which can display the contents which were selected automatically and carried out record-keeping the optimal for a user, an information processing method, and an information processor can be provided.

2.\*\*\*\* shows the word which can not be translated.

3.In the drawings, any words are not translated.

---

## DESCRIPTION OF DRAWINGS

---

[Brief Description of the Drawings]

[Drawing 1]It is a block diagram showing the example of composition of the multimedia information apparatus by one embodiment of this invention.

[Drawing 2]It is a block diagram showing other examples of composition of the multimedia information apparatus by one embodiment of this invention.

[Drawing 3]It is a block diagram showing the example of composition of further others of the multimedia information apparatus by one embodiment of this invention.

[Drawing 4]It is a figure showing the example of composition of a remote control unit.

[Drawing 5]It is a figure explaining the example of a guide (interface) screen for the information selection by this invention.

[Drawing 6]It is an enlarged drawing explaining the details of a cube.

[Drawing 7]It is a flow chart explaining processing of initialization routine when a power supply is supplied to apparatus.

[Drawing 8]It is a flow chart explaining processing of the main routine which performs various kinds of operations which choose information from a cube.

[Drawing 9]It is a flow chart explaining operation in case selected contents are ending with recording during television televising, and a recording schedule.

[Drawing 10]It is a flow chart explaining the operation under viewing and listening of the electronic publishing which is selected contents.

[Drawing 11]They are a homepage which is selected contents, and a flow chart

explaining the operation under viewing and listening of data broadcasting.

[Drawing 12] It is a flow chart explaining the operation under viewing and listening of a recorded thing during television televising which is selected contents.

[Drawing 13] It is a flow chart explaining operation of the browser under viewing and listening of a homepage, data broadcasting, and electronic publishing.

[Drawing 14] It is a figure showing the example of a screen displayed one by one according to operation.

[Drawing 15] It is a figure showing the example of a screen displayed one by one according to operation.

[Drawing 16] It is a figure showing the example of a screen displayed one by one according to operation.

[Drawing 17] It is a figure showing the example of a screen displayed one by one according to operation.

[Description of Notations]

100 and 700 Processing unit

101 and 101' signal separation device

102 Information decoders

103 Information buffers

104 and 701 Comparing element

105 and 601 User profile

106 A/V decoder

107 Image recording device

108 Display picture switch part

109 Guide screen preparing part

110, 704 filing devices

111 Clock calendar

112 Indicative-data selection part

113 Command reception part

114, 703 WWW browsers

115 and 702 Latest information buffer

200 Antenna

300 and 800 Display

400 Remote control

401 Body part

402 Electric power switch

403 Menu switch

404 Zoom-in / zoom down switch  
405 Revolving dial  
406 Cursor switch  
407 Detailed switch  
409 Recorded-information-reproduction control switch group  
410 Infrared issuing part  
411 Circuit board  
412 Tact switch  
413 Rotation detector  
414 IC for control  
415 Cell  
500 Communication line  
600 Service provider  
602 Celebrity profile  
603 Provider recommendation information file  
705 Final controlling element  
900 Portable telephone